UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/653,827	09/01/2000	Glenn D. Rasmussen	240703-1110	6068

23506	7590	03/28/2005

GARDNER GROFF, P.C.
2018 POWERS FERRY ROAD
SUITE 800
ATLANTA, GA   30339

EXAMINER
TO, BAOQUOC N

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

1.   Claims 1-44 are pending in this application.

Information Disclosure Statement

2.   The information disclosure statement (IDS) submitted on 10/18/2004 and

11/22/2004. The submission is in compliance with the provisions of 37 CFR 1.97.

Accordingly, the information disclosure statement is being considered by the examiner.

Response to Arguments

3.   Applicant's arguments filed 09/28/2004 have been fully considered but they are

not persuasive.

Applicant argues "event if one skilled in the art combines Mullins and Fink, he

would still fail to provide a metadata model transformer or method for transforming a

metadata models as recited in claims 9 and 36"

The examiner disagrees with the above argument. Mullins discloses "the object

schema 200 is accessed by object application 101 through an abstract layer 600...this

abstraction layer allow both kinds of data stores-object and non-object (e.g. relational)-

to be accessed identically from at least one object application 101" (col. 4, lines 10-14).

This suggests the two layers of abstractions. Finks discloses "the next process iteration

results in a more refined data warehouse specific to a particular client application. As a

result of client interaction or engagement, the SME refines the business rule metadata

to reflect the client's business and DIA refines the characteristics of the data and

identifies the client specific data sources. The DIA also refines the cleansing,

transformation and householding metadata selection and creates additional cleansing,

transformation, and householding metadata as identified through client interaction. All

of the resulting metadata modifications are stored in the metadata of the database

management system" (col. 8, lines 19-29). This suggests the concept of both

transformation and refining the business rules according to the user application. Since

both applications are in the same field of endeavor; therefore, modification of Mullins is

required to prove the system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-8, 35 and 43-44 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Mullins (US. Patent No. 5,857,197) in view of Baisley et al. (US.

Patent No. 6,292,932 B1).

Regarding on claim 1, 35 and 43-44, Mullins teaches metadata model

transformer for transforming a metadata model, the transformer comprising:

a lower-to-higher transformation having:

means for obtaining information of a lower abstraction model object in the lower

layer of a metadata model having a lower layer containing one or more lower degree of

abstraction model objects having and a higher layer containing one or more higher

abstraction model objects having a higher abstraction (col. 4, lines 33-67); and

means for creating a model object in the higher layer a higher corresponding to

the model object in the lower layer (col. 4, lines 33-67).

Mullins does not explicitly teach means for abstracting the information by adding business rules for representing a business concept. However, Baisley teaches "UML may be used to model metamodels, which will later need to be translated into MOF metamodels. The present invention provides a set of rules for making such a transformation" (col. 3, lines 25-28). This suggests the transforming of metamodels utilizing transformation rules. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to modify Mullins system to include the transformation rules in order to provide the transformation rules to transform a metadata model as taught by Baisley in order to provide a model to allow application to process according to user input.

Regarding on claim 2, Mullins teaches metadata model transformer comprising:

a lower layer transformation having:

means for obtaining information from model object in the lower layer (col. 4, lines 33-67);

means for modifying the obtained information (col. 4, lines 33-67); and

means for transforming the model object in a lower layer based on the modified information (col. 4, lines 33-67).

Regarding on claim 3, Mullins teaches metadata model transformer comprising:

a lower layer transformation having:

means for obtaining information from a model objects in the lower layer (col. 4, lines 33-66);

means for determining a specific feature included in the obtained information (col. 4, line 33-66); and

means for creating a new model object based in the lower layer on the specific feature (col. 4, lines 33-66).

Regarding on claim 4, Mullins teaches metadata model transformer comprising:

a lower layer transformation having:

means for obtaining relationship information between multiple model objects in the lower layer (col. 4. lines 33-66); and

means for creating a new model object in the higher layer based on the relationship information (col. 4, lines 33-66).

Regarding on claim 5, Mullins teaches metadata model transformer as claimed in claim 1 further comprising:

a higher layer transformation having:

means for obtaining information of a model object in the higher layer (col. 4, lines 44-66)-,

means for modifying the obtained information (col. 4, lines 33-66)., and

Means for transforming the higher abstraction model object based on the modified information (col. 4, lines 33-66).

Regarding on claim 6, Mullins teach metadata model transformer as claimed in claim 1 further comprising:

a higher layer transformation having:

means for obtaining information of a higher abstraction model objects from the

higher layer (col. 4, lines 33-66);

means for determining a specific feature included in the obtained information

(col. 4, lines 33-66); and

means for creating a new higher abstraction model object based on the specific

feature (col. 4, lines 33-66).

Regarding on claim 7, Mullins teaches a metadata model transformer further

comprising:

a higher layer transformation having:

means for obtaining relationship information between multiple higher abstraction

model objects from the higher layer (col. 4, lines 33-66);and

means for creating a new higher abstraction model object based on the

relationship information (col. 4, lines 33-66).

Regarding on claim 8, Mullins teach a metadata model transformer further

comprising:

a higher layer transformation having:

means for selecting a subset of the higher abstraction model objects from the

higher layer (col. 4, lines 33-66); and

means for creating a new higher abstraction model object based on the selectèd

subset of the higher abstraction model objects (col. 4, lines 33-66),

5.   Claims 9-21, 24-33 and 36-42 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Mullins et al. (US. Patent No. 5,857,197) in view of Fink (US.

Patent No. 6,490,590).

Regarding on claims 9 and 36, Mullins teaches a metadata model transformer for

transforming a metadata model that represents one or more data sources having

physical data the transformation comprising:

one or more data access model transformations for refining description of the

physical data in the data source expressed by data access model objects in a metadata

model having a data access layer containing the data access model objects having a

lower degree of abstraction, a business layer containing business model objects having

a higher degree of abstraction compared to the data access model objects, and a

package containing package model objects (col. 4, lines 33-48);

one or more data access to business model transformations for constructing business

model objects based on the data access model objects (col. 4, lines 33-48);

one or more business model transformations for refining the business rules

expressed by the business model objects (col. 4. lines 33-48); and

one or more business to package model transformations for constructing

package model objects based on the business model objects (col. 4, lines 33-38).

Although, Mullins does not explicitly teach the refining the business rules;

however, Fink teaches, "SME refines the business rule metadata to reflect the client's

business" (col. 8, lines 20-22). This teaches the refines business rule metadata.

Therefore it would have been obvious to one ordinal skill in the art at the time of the

invention was made to modify Mullins to include refining business rules of Fink because

refining rule metadata would allow the creation of the object model in order to aid the

business application.

Regarding on claims 10 and 37, Mullins teaches the data access model

transformations refines the description by adding new data access model objects to

data access model objects which are constructed via import from the data sources or

one or more metadata sources (col. 4, lines 33-48).

Regarding on claims 11 and 38, Fink teaches the business model

transformations refine the business rules by changing the business model objects (col.

8, lines 20-22).

Regarding on claims 12 and 39, Mullins teaches the business model objects

include business model objects which are constructed via import from one or more

metadata sources (col. 4, lines 8-20).

Regarding on claims 13 and 40, Mullins teaches metadata model transformer

further comprising:

one or more package model transformations for constructing a new package

model object based on the package model objects in the model (col. 4, lines 33-48).

Regarding on claims 14 and 41, Mullins teaches the package model objects

include package model objects which are constructed via import from one or more

metadata sources (col. 4, lines 33-48).

Regarding on claims 15 and 42, Mullins teaches metadata model transformer

further comprising: a name mutation transformation for changing names of objects in

the model based on user defined rules (col. 4, lines 33-48).

Regarding on claim 16, Mullins teaches the data access model transformations

include a transformation which creates a new data access model object based on the

data access model objects contained in the data access layer (col. 4, lines 33-48).

Regarding on claim 17, Mullins teaches the data sources contain tables having

columns and indexes, the data access model objects include data access tables, data

access columns and data access indexes which respectively describe information about

the tables, columns and indexes in the data sources; and the data access model

transformations include a data access join constructing transformation for constructing a

data access join between data access tables based on the data' access indexes (col. 4,

lines 8-20).

Regarding on claim 18, Mullins teaches the data sources contain tables having

columns and indexes', the data access model objects include data access tables, data

access columns and data access indexes which respectively describe information about

the tables, columns and indexes in the data sources', and the data access model

transformations include a data access key constructing transformation for creating a

data access key fot a data access table based on the data access indexes (col. 4, lines

8-20).

Regarding on claim 19, Mullins teaches the data sources contain at least one of

tables having columns and indexes, views having columns or files having columns or

fields:

the data access model objects include at least one of data access tables, data

access views, data access files, data access columns and data access indexes which

respectively describe information about the tables, columns of the tables, indexes of the

tables, the views, the columns of the views, the files, and the columns or fields of the

files in the data sources' and the data access model transformations include a table

extract constructing transformation for constructing a table extract based on the data

access tables, the data access views and the data access files (col. 4, lines 8-20).

Regarding on claim 20, Mullins teaches the data access model objects include

one or more logical cube, each of which defines a multidimensional space represented

in a number of physical storage formats (14, lines 32-48); and

the data access model transformations include a data access cube constructing

transformation for constructing data access cubes to instantiate the multidimensional

space defined by each logical cube (col. 4, lines 32-48) .

Regarding on claim 21, Mullins teaches the data access to business model

transformations include a basic business model constructing transformation which

obtains information about a data access model object in the data access layer, and

create a business model object corresponding to the data access model object (col. 4,

lines 32-48).

Regarding on claim 24, Mullins teaches the business model objects include one

or more redundant joins that express the transitivity of two or more other join

relationships in the business layer (col. 4, lines 32-48): and

the business model transformations include a redundant join relationship

eliminating transformation for locating the redundant joins, and eliminating the

redundant joins from the business layer (col. 4, lines 32-48).

Regarding on claim 25, Mullins teaches the business model transformations

include a subclass relationship introducing transformation for introducing new entity

with a subclass relationship into the business layer (14, lines 32-48).

Regarding on claim 26, Mullins teaches the business model objects include an

entity acting as a lookup table with respect to the other entity, and a business join

between the entities, the business join is an associate type; and the business model

transformations include an entity referencing transformation for locating the entity acting

as a lookup table, and changing the business join which is an association type to a

business join which is a reference type (col. 4, lines 32-48).

Regarding on claim 27, Mullins teaches the business model transformations

include an attribute usage determining transformation for determines the usage of an

attribute based on how it is used by other business model objects (col. 4, lines 50-64).

Regarding on claim 28, Mullins teaches the business model transformations

include a date usage identifying transformation for examining attributes to determine

where dates are used in the attributes (col. 4, lines 32-48).

Regarding on claim 29, Mullins teaches the business to package model

transformations include a basic package model constructing transformation for

constructing a package layer by forming a package with package model objects which

corresponds to a subset of the business model objects (col. 4, lines 32-48).

Regarding on claim 30, Mullins teaches the package model transformations

include a special package construction transformation for constructing a specific

package which is usable by a specific client application from a generic package (col. 4,

lines 32-48).

Regarding on claim 31, Mullins teaches one or more multidimensional model

transformations for a multidimensional model (col. 4, lines 32-48).

Regarding on claim 32, Mullins teaches the multidimensional model

transformations include a measure identifying and measure dimension constmcting

transformation for analyzing the structure of each data source to identify entities that

contain measure candidates and identifying a reasonable set of measures (col. 4, lines

32-48).

Regarding on claim 33, Mullins teaches the multidimensional model

transformations include a category dimension and level constructing transformation for

analyzing each data source, and constructing dimensions and levels for the source

model (col. 4, lines 32-48).

Regarding on claim 34, Mullins teaches the multidimensional model

transformations include a logical cube constructing transformation for constructing a set

of logical cubes based on the dimensions in a corresponding data source (col. 4, lines

32-48).

6.   Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Mullins et al. (US. Patent No. 5,847,197) in view of Fink (US. Patent No.

6,490,590) and further in view of Henninger et al. (US. Patent NO. 5,499,371).

Regarding on claim 22, Both Mullins and Fink do not explicitly teach the business

model objects include entities that exist as an implementation artifact of a many to many

relationship, and many to many business joins associated with the entities', and the

business model transformations include a many to many join relationship fixing

transformation for locating the entities, and replacing the associated many to many

business joins with a single business join. However, Henninger, teaches, "for each

many-to-many relationship in the object model, a separate join table is added to the

data base schema" Icol. 8, lines 51-53). Therefore, it would have been obvious to one

ordinary skill in the art at the time of the invention was made to modify Mullins by

including Henniger in order to provide for using an object model of an object-oriented

application to automatically map information between an object-oriented application and

a structured database, such as relational database.

Regarding on claim 23, Henninger teaches the business model objects include

entities that are related via a 1 :1 join relationship (col. 8, lines 48-51)-, and

the business model transformations include an entity coalescing transformation

for locating the entities that are related via a 1:1 join relationship, and coalescing the

located entities into a single entity (col. 8, lines 48-51).

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Baoquoc N. To whose telephone number is at 571-272-
4041 or via e-mail BaoquocN.To@uspto.gov. The examiner can normally be reached
on Monday-Friday: 8:00 AM – 4:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, John Breene can be reached at 571-272-4107.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is (703) 305-
3900.

Any response to this action should be mailed to:

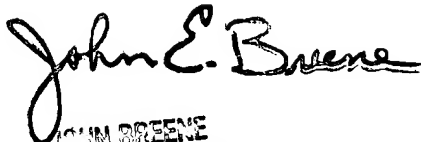Commissioner of Patents and Trademarks

Washington, D.C. 20231.

The fax numbers for the organization where this application or proceeding is assigned are as follow:

(703) 872-9306 [Official Communication]

Baoquoc N. To
March 18, 2005

JOHN E. Breene

JOHN BREENE
SUPERVISORY PATENT EX
TECHNOLOGY CENTER